

REMARKS

Claims 1-12 are pending.

As required by the Examiner, FIGS. 17A, 17B, 17C, 18A and 18B have been labeled with the legend "Prior Art."

Applicant thanks the Examiner for indicating that claims 11 and 12 include allowable subject matter.

Claims 1-10 have been rejected as unpatentable over U.S. Patent No. 5,502,009 (Lin) in view of Japanese Patent Document No. 40813025 (Sugahara). As discussed below, applicant respectfully disagrees.

The Law of Obviousness

A claimed invention is unpatentable due to obviousness if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the art." 35 U.S.C. § 103(a).

As discussed by the Court of Appeals for the Federal Circuit, a proper conclusion of obviousness under 35 U.S.C. § 103 requires that there be some motivation in the prior art that suggests the claimed invention as a whole:

[A]n Examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability." [Citations omitted] To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show motivation to combine the references that create the case of obviousness.

In re Rouffet, 149 F.3d 1350, 1357; 47 USPQ2d 1453, 1457-1458 (Fed. Cir. 1998). As further explained by the Federal Circuit:

Our case law makes clear that the best defense against hindsight-based obviousness analysis is the rigorous application of the requirement for a showing of a teaching or motivation to combine the prior art references. See Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617. "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight." Id.

"When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references." In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998) (citing In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987)).

Ecolochem, Inc. v. Southern California Edison Co., 56 USPQ2d 1065, 1072-73 (Fed. Cir. 2000). The showing of the motivation to combine must be "clear and particular." *See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998); *Teleflex, Inc. v. Ficosa North Am. Corp.*, 63 USPQ2d 1374 at 1387 (Fed. Cir. 2002).

Claims 1-10 are Patentable over the Lin and Sugahara References

Claim 1 recites a method for manufacturing a semiconductor device. The method of claim 1 may help reduce contamination of the substrate surface by organic material contained in the photoresist layer. In particular, the extent to which the substrate with the photoresist film is exposed to etchant can be reduced so that contamination of the substrate is prevented and the quality of the gate oxide formed on the substrate is improved.

The Office action alleges that the Lin patent teaches all features of claims 1 and 4 except removing the oxide layer on the second device formation region along with the oxidation resistant film on the second formation region, and forming a new oxidation by thermal oxidation. The Office action relies on the Sugahara document as allegedly teaching those steps.

As discussed below, the required "clear and particular" motivation to combine the references to obtain the claimed subject matter is lacking.

First, the Lin patent actually teaches away from the desirability of applying the disclosure of the Sugahara document. For example, FIG. 2D of the Lin patent shows a semiconductor component that has two active regions 21,22 and two respective oxide layers of different thickness 23, 26. At that stage, the semiconductor process for oxide layer processing is complete. As explained by the Lin patent, once the arrangement shown in FIG. 2D is produced, "subsequent processing for forming gate electrodes and source/drain regions are identical to the conventional method." (*See* column 3, lines 57-59)

Such a conventional method for subsequent processing of the structure of FIG. 2D is described in the Background section of Lin. (*See* column 1, line 13 to column 2, line 22) FIG. 1C shows a conventional (prior art) structure having a first gate oxide layer 14 over a first active region 11 and a second gate oxide layer 15 over a second active region 12. The conventional structure of FIG. 1C is very similar to the structure of FIG. 2D described above. As illustrated in FIG. 1D, subsequent processing includes forming gate electrodes 16 and source/drain regions 17. Thus, the Lin reference teaches subsequently processing the structure of FIG. 2D to arrive at the conventional structure of FIG. 1D. Clearly, one skilled in the art would only be motivated to subsequently form gate electrodes and source/drain regions using conventional methods and not be motivated to apply the additional processing steps from the Sugahara reference as suggested by the Office action.

Second, there is no motivation or suggestion to combine the teachings of the Lin and Sugahara references for the following additional reasons. As explained above, FIG. 2D shows a semiconductor component that has two active regions 21,22 and two respective oxide layers of different thickness 23, 26. The oxide layer processing is complete. Indeed, at that stage in the process, since the respective oxide layers 23, 26 each already have a different thickness, a person of ordinary skill in the art would have no reason to perform the additional steps of removing an oxide layer and forming an additional oxide layer. Applying these additional steps would likely increase the time and cost of processing.

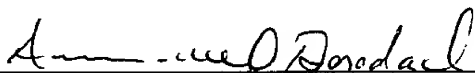
In addition, the Sugahara document discloses removing the oxidation resistant film 13 and oxide film 12 from a first region 21 (FIG. 1d) and then adding a new oxide film 23 (FIG. 1e). Even assuming for the sake of argument that a person of ordinary skill in the art would have wanted to combine the teachings of the Lin and Sugahara documents in some way, what he would have been motivated to do is to remove the first gate oxide layer 23 from the first active region 21 and then form another oxide layer in the first active region 21. Clearly, a person of ordinary skill in the art would not have been taught to remove the oxide layer on the second formation area along with the oxidation resistant film on the second formation region, and form a new oxidation by thermal oxidation. A contrary conclusion would be based on precisely the type of improper hindsight that the Federal Circuit has warned against.

In view of the foregoing remarks, applicant respectfully requests reconsideration and withdrawal of the rejections of claims 1-10.

Enclosed is a check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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